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(54) Title of the Invention

METHOD FOR PACKING A FOAMED BODY

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S P E C I F I C A T I O N

1. Title of the Invention

METHOD FOR PACKING A FOAMED BODY

2. Scope of the Patent Claim(s)

A method for packing a foam, characterized in that a bag which spreads in

correspondence with the shape of an inner space of a structural member or the like to be packed when a foamable material is foamed, is inserted, and in that a prescribed amount of a liquid foamable material is injected in said bag and foamed.

3. Detailed Description of the Invention

Area of Industrial Application

The present invention pertains to a method for foaming and packing a liquid foamable material such as foamable polyurethane in a space of a target structural member or the like.

Prior Art

A liquid foamable material is injected, foamed, and packed in spaces in various structural members such as the body of an automobile for a great variety of purposes such as reinforcement and insulation.

However, when a liquid foamable material is simply injected in spaces of various structural members and foamed, there occurs a problem such that the liquid foamable material flows to the outside via any openings that exist in the structural members. To avoid this problem, the structural members have been sealed in the past with cellophane tape or the like in all areas except areas from which air escapes during foaming, to seal the openings, or members already finished to a state in which there are no openings. Because of this, work efficiency has been poor, and there has been a disadvantage such that the work environment deteriorates if the liquid foamable material leaks during work. For these reasons, it has been difficult to foam and pack a liquid foamable material by the conventional method in members that have such openings.

Object of the Invention

The aim of the present invention is to solve the above-mentioned problems of the prior art, and the object thereof is to provide a method that can simply foam and pack a liquid foamable material in structural members of any shape without the need for complete sealing with a sealing material or the like.

Constitution of the Invention

Specifically, the method for packing a foam of the present invention is characterized in that a bag which spreads in correspondence with the shape of an inner space of a structural member or the like to be packed when a foamable material is foamed, is inserted, and in that a prescribed amount of a liquid foamable material is injected in said bag and foamed.

Desirable features for the bag to be used in the present invention are that it has elasticity and spreads to fill the space to be packed by being pushed by the foaming pressure of the foamable material, but it does not necessarily have to be a bag of this kind. In other words, a bag of a size such that it will spread in advance throughout the whole space may also be used.

The bag may be one made of plastic such as polyethylene or polypropylene, apart from one made of rubber. It is desirable to select the best shape and size of these choices, depending on the intended location of use, the packing amount, and the type of foamable material. It goes without saying that materials that will not be dissolved by the foamable material or materials with a sufficient thickness should be used.

The bag may or may not be broken in the middle of foaming. Furthermore, if an adhesive with athermally adhesive property is applied to the outer surface of the bag if necessary, the foam can be strongly fixed in the structural member by heating after foaming.

The above-mentioned liquid foamable material is injected in a bag-shaped vessel, and then the vessel is sealed with a clip or the like, placed in a structural member, and left to stand for some time or heated if needed, in order to foam the foamable material. The above-mentioned bag-shaped vessel should not be broken until the liquid foamable material becomes highly viscous with the progress of foaming and will no longer flow out of the openings of the structural member. Thereafter, if the bag is opened and foaming is continued, the liquid foamable material turns completely into a foam, solidifies, and fills the structural material, to complete packing.

Actual Example

The present invention will be described in more detail in the following actual example. Here, it should be understood that the present invention is not limited to the following actual example.

The figures is a partially cutaway perspective view of a structural member, which shows the method of the present invention.

A balloon 5 made of natural rubber attached as the bag to the injecting end of an injecting tool 4 was inserted via an inlet 6 into a structural member which consists of a flat panel 1 and a J-shaped panel 2 and has a part-attaching hole 3 on the J-shaped panel 2. A liquid foamable polyurethane source material was injected from the injecting tool 4, then the mouth of the balloon 5 was sealed with a clip, and the balloon was separated from the injecting tool to be placed in the structural member. When the source material began to foam and attained a viscosity at which it could no longer flow out of the opening, the balloon 5 was ruptured with a needle. When foaming was continued further, a foam was packed throughout the structural member. The method of the present invention was able to sharply reduce the irritating odor

of isocyanate compounds in the working environment when compared with the conventional method.

Effect of the Invention

As described above, the method for packing a foam of the present invention foams a liquid foamable material to a suitable viscosity by placing it in an elastic bag-like vessel and inserting the vessel in a structural member, thus there is no need to seal any openings or holes in the structural material and thus no materials are required for that purpose, therefore the working efficiency is increased and the cost of materials, etc., can be reduced. Furthermore, the method can minimize the diffusion of the liquid foamable material into the working environment atmosphere and thus provides a very great advantage with respect to improving the working environment.

4. Brief Description of the Figure

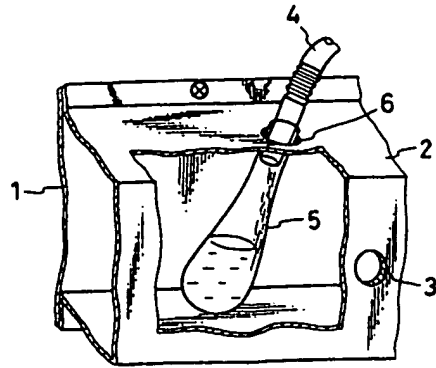
The figure is a partially cutaway perspective view of a structural member, which shows the method of the present invention.

In the figure:

(1) flat panel; (2) J-shaped panel; (3) part-attaching hole; (4) injecting tool; (5) balloon; and (6) inlet.

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Figure

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④ 発泡体の充填方法

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明 細

1. 発明の名称

発泡体の充填方法

2. 特許請求の範囲

発泡性材料を発泡させたと
造部材等の内部空間の形状に
体を前記内部空間に挿入し、
の液状発泡性材料を注入し発
泡とする発泡体の充填方法。

3. 発明の詳細な説明

(産業上の利用分野)

本発明は発泡性ポリウレタン等の液状発泡性材料を、目的とする構造部材等の空間内に発泡充填する方法に関するものである。

(従来技術)

自動車のボデーのような各種構造部材内の空間に補強や断熱など多種、多様な目的で液状発泡性材料を注入し発泡充填させることが行われている。

発泡性材料を各種構造部材に発泡させた場合には、構造部材に液状発泡性材料がその部分に浸入する問題を生ずる。このため従来は構造部材は予じける部分を残して他はセいて隙間をシールするとひかないような部材に仕上そのため作業効率が悪く、発泡性材料が漏れ出た場合などの欠点を有して

いた。上記の理由により従来法においては一部に隙間があるような部材に液状発泡性材料を発泡充填させることは困難であつた。

(発明の目的)

本発明は上記従来技術の問題点を解決するためのものであり、その目的とするところはシール材等による完全密閉を必要とせずにかなる形状の構造部材内へも液状発泡性材料を簡単に発泡充填することができる方法を提供すること

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にある。

(発明の構成)

すなわち本発明の発泡体の充填方法は発泡性材料を発泡させたときに充填すべき構造部材等の内部空間の形状に対応して広がる袋体を前記内部空間に挿入し、該袋体内に所定量の液状発泡性材料を注入し発泡させることを特徴とする。

本発明で使用する袋体としては、ゴム袋のように伸縮性があり、発泡性材料の発泡圧に押されて充填すべき空間内に一杯に広がるものが好ましいが、必ずしもこのようなものでなくてもよい。すなわち予じめ空間内一杯に広がるような大きさの袋であつてもよい。

袋体としては、ゴム製のほか、ポリエチレン、ポリプロピレン等のプラスチック製のものであつてもよい。これらは使用場所、充填量、発泡性材料の種類等により形状、大きさ等は最適のものを選択するとよい。発泡性材料により溶解しない材質または充分な厚さを有するものを使用することは勿論である。

平板パネル1およびコ字型パネル2より構成され、コ字型パネル2上に部品取付穴3を有する構造部材内に、注入具4の注入端に袋体として天然ゴム製の風船5を装填したものを注入口6より挿入した。注入具4より液状発泡性ポリウレタン原料を注入した後風船5の口をクリップで密封し、注入具より切離して構造部材内に収めた。発泡が始まり隙間から流出しない程度の粘度となつたところで針で風船5を破裂させた。更に発泡を続けると構造部材内全体に発泡体が充填された。本発明の方法は従来法に比べて作業環境下におけるイソシアネート化合物の刺激臭を著しく減少させることができた。

(発明の効果)

上述のように本発明の発泡体の充填方法は液状発泡性材料を伸縮性袋状容器に入れて構造部材内に挿入し適当な粘度となるまで発泡させるものであるため、構造部材の隙間や穴を密閉する必要がなくまたそのための材料等も必要としないため作業能率を大きく増大させると共に材

料等は発泡の途中で破いてもよいし、破かなくてもよい。また袋体には必要に応じてその外面に熱接着性接着剤などを塗布しておけば、発泡後加熱することにより発泡体を構造部材内により強固に固定できる。

上記の液状発泡性材料を袋状容器内に注入後クリップ等で密封して構造部材内に収め発泡させるためにしばらく放置するかまたは必要ならば加熱する。発泡が進み液状発泡性材料が高粘性となつて構造部材の隙間等より流出しなくなるまでは上記袋状容器を破らないようにする。その後袋体の口を開いて更に発泡を続けると液状発泡性材料は完全に発泡体となつて固化し構造部材内を満して充填が完了する。

(実施例)

以下の実施例において本発明を更に詳細に説明する。なお本発明は下記実施例に限定されるものではない。

図は本発明の方法を示す構造部材の一部破断斜視図である。

料費等の節約にも効果がある。また液状発泡性材料の作業環境雰囲気内への拡散を最小限度に抑えることができるため作業環境改善にも大きな効果を奏する。

4. 図面の簡単な説明

図は本発明の方法を示す構造部材の一部破断斜視図である。

図中、

- | | |
|-----------|------------|
| 1 … 平板パネル | 2 … コ字型パネル |
| 3 … 部品取付穴 | 4 … 注入具 |
| 5 … 風船 | 6 … 注入口 |

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